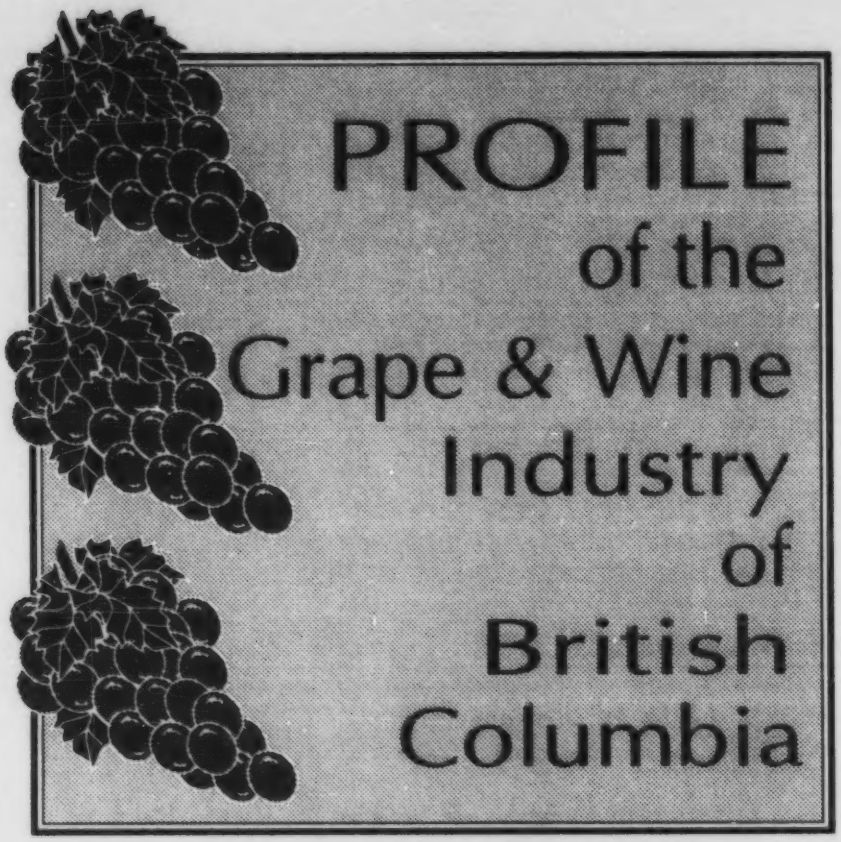

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Ministry of Agriculture, Fisheries and Food

BC
A216
D: P765
1991
c.3

Canadian Cataloguing in Publication Data
Vielvoye, John.
Profile of the grape & wine industry of British Columbia

ISBN 0-7718-9134-2

1. Wine industry - British Columbia. 2. Grape industry - British Columbia. 3. Viticulture - British Columbia. I. British Columbia. Ministry of Agriculture, Fisheries and Food. II. Title.

HD9384.C33B75 1991 338.1'748'09711 C92-092002-0

This publication was produced by:

Extension Systems Branch
B.C. Ministry of Agriculture, Fisheries and Food
808 Douglas Street
Victoria, B.C.
V8W 2Z7
(604) 387-3496

Printed 11/91 - 500

PROFILE of the Grape & Wine Industry of British Columbia

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Ministry of Agriculture, Fisheries and Food

92-01398/

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History

Grapes have been grown in B.C. since the early explorers settled in various areas of the province. The first serious plantings were made in the Okanagan area in 1926. Planted were North American varieties such as Patricia, Sheridan, Campbells Early, Delaware, Concord, Pearl of Csaba, Ontario, Niagara, and others suited to fresh markets for eating, jam and juice.

The first wineries were established in 1932. This led to an increased demand for grapes and a search for new varieties. By 1947 Golden Chasselas had been planted as a result of a shipping error. Other Vitis vinifera selections were tried, but failed due to disease, and poor cultural practices. Varieties planted for the fresh market plus White Diamond were recommended for the winery market.

Experimentation with French Hybrids began in 1950. By 1959 varieties such as Bath, Okanagan Riesling, and French hybrids such as Bertyle Seyve 2862, Aurora, Rougeon, Marechal Foch, Chancellor, Verdelett, De Chaunac, Rosette, Chelois, and Cascade were introduced and planted for wineries. These selections became the backbone of the wine industry until the renewed attempts to grow European varieties other than the French Hybrids proved successful in the late 1970s. New variety experiments using Vitis vinifera from Washington State in 1974, followed by introductions from Germany in 1977, proved successful. The 1980s saw a change of varieties to the European selections and a reduction of the older table grape selections as well as a reduction in the French hybrids.

New wineries entered the industry in 1961, 1966, 1979, 1981, 1982, 1986, 1988, 1989, 1990 and 1991.

Technological changes in wine production and grape production have created an industry in 1991 that has little resemblance to its early beginnings. The introduction of new varieties has created an industry base that is barely 10 years old. Wineries have introduced new fermentation and processing technologies. British Columbia wines are shipped interprovincially to some of the other Canadian provinces and to the Territories, plus minimal exports.

Present Situation

Economic activity created by the wine and grape industry in British Columbia in 1990 exceeded $51,460,817. The added value of products produced by wineries exceeded $126,285,000. Industry investment exceeds $67 million dollars. In excess of $29,032,788 was paid in federal, provincial and local taxes. The industry created in excess of 466 full time and 456 part time jobs.

Industry restructuring after the G.A.T.T. decision and Free Trade Agreement has led to greater cooperation in the industry. The British Columbia Wine Institute was formed in 1989. The mission statement for this organization defines the long term vision of the industry.

Wine Institute Mission Statement

1. **To establish quality standards covering designated viticultural areas, varietal and blended wines, vintage dating, vineyard designation, estate bottling, and specialty wines.**

2. **To coordinate marketing efforts in order to enhance the quality image for all British Columbia wines that bear the trademark of the British Columbia Vintners Quality Alliance.**

3. **To coordinate and exchange information and research in areas of macro and micro climatology, varietal and clonal selections, training methods and related viticultural practices for the mutual benefit and development of British Columbia's winegrowing regions.**

4. **To coordinate and exchange information and research with regard to the uniqueness of British Columbia's winegrowing regions in order to define and improve upon the characteristics and qualities of the wines that are produced in those regions.**

5. **To develop and disseminate educational information and material in order to inform the public and interested members of the wine community about British Columbia's winegrowing regions.**

Grape Production

Areas of Production

The grape producing areas of British Columbia are the Okanagan Valley, Similkameen Valley, Fraser Valley, and the south eastern portion of Vancouver Island. (Table 1). The Okanagan Valley is the major grape producing area (Table 2). Within the Okanagan Valley, the major area of production is located in the southern portion at Oliver/Osoyoos. The northern area near Kelowna is the second largest production area (Table 3).

TABLE 1 Number of Acres and Size of Vineyard in British Columbia Designated Viticultural Areas – 1990

Designated Viticulture Area	Grape Use		Total Acres	Number of Vineyards
	Fresh	Wine		
Okanagan	113	1,423	1,536	119
Similkameen		23	23	3
Fraser Valley		20	20	1
Vancouver Island		10	10	3
TOTALS	**113**	**1,476**	**1,589**	**126**

Sources: The British Columbia Grape Marketing Board
B.C. Ministry of Agriculture, Fisheries and Food,
John Vielvoye, Provincial Grape Industry Specialist

There are 126 grape producers, farming 1,589 acres of grapes. Small acreages are located in all grape producing regions.

TABLE 2 Grape Production for Processing in British Columbia Designated Viticulture Areas – 1990

Designated Viticulture Area	Tons	Percentage of Total
Okanagan	4,727	98.0
Similkameen	39	0.8
Fraser Valley	49	2.00
Vancouver Island	12	0.2
TOTALS	**4,827**	**100.0**

Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist

TABLE 3 Purchase (Tons) of Processed Grapes within Designated Viticulture Areas

Years	1987	1988	1989	1990	Percent based on 1990
Oliver-Osoyoos	6,832	8,185	1,550	1,856	39
Naramata, Penticton, Similkameen, OK. Falls	2,183	2,884	972	1,365	28
Summerland, Peachland	607	601	136	201	4
Westbank	1,495	1,595	334	382	8
Kelowna	3,470	3,289	475	727	15
Winfield North	1,311	1,415	131	235	5
Similkameen				39	Less than 1
Fraser Valley		13	49	1	
Vancouver Island				12	Less than 1
TOTAL	**15,897**	**17,981**	**3,598**	**4,827**	**100**

Source: B.C. Ministry of Agriculture, Fisheries and Food John Vielvoye, Provincial Grape Industry Specialist

Note: Similkameen data separated from O.K. Falls and Summerland in1990, but not before 1990.

G.A.T.T. and Free Trade

The international body that administers trade complaints under the General Agreement on Tariffs and Trade (G.A.T.T.) agreed with a complaint from the European Economic Community (E.E.C.) in November 1987, that Canadian provinces unfairly mark up prices of European wines. The complaint was upheld. Canada was given one year to respond by improving pricing, listing, and distribution practices for European wines. The provinces are responsible for the adjustments. The provinces have implemented changes to the listing, distribution and pricing policies. These changes will be fully implemented by the time the Free Trade Agreement with the United States is fully implemented.

The government of Canada and the United States of America signed a Free Trade Agreement January 2, 1988. This agreement will be fully implemented by the end of 1994. It also significantly impacts listings, pricing and distribution practises and estate wineries. The agreement provides for major changes in the marketing of American wines including the granting of national treatment and non discriminatory pricing through a gradual reduction of mark up differentials.

Acreage Removal - Effects of G.A.T.T. and Free Trade

The grape and wine industry experienced major adjustments in 1988 and 1989 as a result of the signing of the Free Trade Agreement and the decision of G.A.T.T. (Table 4). The Grape and Wine Sector Adjustment Assistant Program provided $28 million to the British Columbia industry to adjust grape acreage, varieties, production, and assist with promotion of qualifying wines. Removals of undesirable varieties concentrated on French hybrid varieties (mostly red), Vitis labrusca varieties and small uneconomic acreage of remaining Vitis vinifera selections. A total of 2,308 acres of grapes were removed.

TABLE 4 **Comparison of 1988 and 1990 Vineyard and Crop in the Okanagan-Similkameen Areas**

	1988	1990
Total grape acreage	3,300	1,559
Largest vineyard (acres)	233	180
Number of vineyards	207	122
Wine crop value ($ millions)	12.6	4.4
Fresh crop value ($ thousands)	113	146
Off farm sales value ($ thousands)	24	123
Total crop value ($ millions)	12.7	4.7
Average vineyard size (acres)	16	13
Number of varieties delivered to wineries	72	40
Delivered varieties, 10 tons or greater	49	31

Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist

Acreage Remaining

All wine grape acreage planted at the time of the GWSAAP was contracted to wineries for a seven year period ending after the harvest in 1994. New plantings since the GWSAAP may or may not be contracted, reflecting industry movement towards a non-regulated market after the 1994 harvest.

A comparison of grape acreage (1979 to 1990) points out the adjustments made to reflect changing demand and markets (Table 5). It is interesting to note that of the 10 grape varieties providing the greatest tonnage to wineries in 1990, only one was delivered in 1980 (Table 6).

TABLE 5 Changes in Grape Acreage in the Okanagan-Similkameen Valleys (1979-1990)

Variety	Acres 1979	1990
Aurora	26	0
Auxerrois	4	45
Bacchus	0	50
Baco Noir	15	21
Bath	181	22
Buffalo	5	0
Cabernet Franc	0	6
Cabernet Sauvignon	4	5
Campbell Early	45	0
Carignane	4	0
Cascade	4	0
Chancellor	27	24
Chardonnay	4	127
Chasselas	28	37
Chelois	91	5
Chenin Blanc	24	15
Concord	55	0
de Chaunac	553	8
Delaware	17	0
Diamond	186	0
Ehrenfelser	39	87
Elvira	5	0
Foch	605	35
Fredonia	5	0
Gamay Beaujolais	0	13
Gewurztraminer	22	83
Golden Muscat	3	0
Grey Riesling	3	0
Himrod	25	7
Interlaken	8	3
Kerner	0	14
Limberger	0	5
Madeleine Sylvaner	0	7
Merlot	3	30
Muller Thurgau	1	27

Table 5
(Cont'd)

Variety	Acres 1979	1990
Muscat	0	3
Niagara	7	0
New York Muscat	3	0
O.K. Riesling	609	12
Optima	0	18
Oraniensteiner	0	2
Patricia	60	23
Pearl of Csaba	0	6
Pearl of Zala	0	22
Pinot Blanc	0	115
Pinot Gris	1	13
Pinot Meunier	0	5
Pinot Noir	3	84
Portland	6	0
Riesling	67	158
Romulus	6	0
Rosette	43	0
Rougeon	144	0
Sauvignon Blanc	4	0
Scheurebe	38	14
Schonberger	0	2
Semillon	3	5
Sheridan	39	0
Seyval Blanc	0	35
Siegfriedrebe	0	13
Sovereign Aurilius	0	3
Sovereign Coronation	0	26
Sovereign Opal	0	4
Venus	0	4
Verdelet	150	123
Vidal 256	0	57
Mixed Vinifera	42	113
Mixed Hybrids	16	16
Mixed Others	3	7
TOTAL	**3,236**	**1,559**

Source: B.C. Grape Marketing Board
B.C. Ministry of Agriculture, Fisheries and Food,
John Vielvoye, Provincial Grape Industry Specialist

TABLE 6 **Grape Varieties providing the Largest Tonnage to Wineries** (in descending order)

1980	1990
De Chaunac	Verdelet
Marechal Foch	Riesling
Okanagan Riesling	Pinot Blanc
Bath	Bacchus
White Diamond	Vidal 256
Verdelet	Gewurztraminer
Chelois	Chardonnay
Rougeon	Chancellor
Rosette	Ehrenfelser
Concord	Baco Noir

Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist

British Columbia in Relation to other Grape/Wine Areas

The British Columbia industry is small when compared to other grape growing regions of North America, and the world. (Table 7 and Table 8).

TABLE 7 **Acres of Grapes in Europe** (in 000's Acre Units)

	France	Italy	Germany	Greece	Spain	Portugal
1967	3,379	4,016	417	563	4,132	857
1987	2,552	2,608	250	408	3,796	958

Source: Institut National Des Appellations D'Origine Des Vins Et Eaux-De-Vie

TABLE 8 Grape Producing Areas of North America (1990)

Area	Wine	Total Acres	Utilized Production Tons
California	330,356	693,465	2,150,000
New York	18,000	38,226	144,000
Washington	11,500	35,500	180,000
Ontario	7,800	15,800	112,565
Michigan	11,000	11,000	46,000
Pennsylvania	700	10,500	53,000
Arizona	300	6,000	26,000
Oregon	5,682	5,682	7,000
British Columbia	1,476	1,589	5,094

Source: Washington Grape Report, January 28, 1991
Ontario Grape Growers' Marketing Board
B.C. Ministry of Agriculture, Fisheries and Food,
John Vielvoye, Provincial Grape Industry Specialist

Canada

Grape producing provinces in Canada are British Columbia, Ontario, Nova Scotia and Quebec. British Columbia is Canada's second largest grape producing province, and accounts for 15.8% of Canadian wine grape acreage (Table 9), 9% of the volume and 16% of the value (Table 10).

TABLE 9 Commercial Grape Acreage in Canada (1990)

Province	Fresh	Wine	Total Acreage
Ontario	8,000	7,800	15,800
British Columbia	113	1,476	1,589
Nova Scotia		150	150
Quebec		50	50
TOTAL	**8,113**	**9,476**	**17,589**

British Columbia has 15.8 percent of the wine grape acreage in Canada.

Source: B.C. Ministry of Agriculture, Fisheries and Food
John Vielvoye, Provincial Grape Industry Specialist

TABLE 10 Volume and Value of Grape Production (1990)

Province	Volume (tons)	Value $
Ontario	51,166	23,579,000
British Columbia	5,093	4,658,822
Nova Scotia	352	422,400
Quebec (estimate)	150	150,000

Source: Ontario Grape Growers' Marketing Board
Nova Scotia Department of Agriculture and Marketing
B.C. Ministry of Agriculture, Fisheries and Food
John Vielvoye, Provincial Grape Industry Specialist

The productivity per acre in B.C. varies greatly between varieties, regions, management practices and effects of climate. The industry has a long term industry average yield of 4.75 tons/acre. The industry average production per acre during the period 1985 to 1990 is 4.71 tons/acre (Table 11).

TABLE 11 Grape Value, Acreage and Yield Per Acre

Year	Bearing Acreage	Total Crop (Tons)	Yield Per Acre (Tons)	Total Crop Value($) 000's	Crop Value/ Acre ($)
1990	1,193	5,094	4.66	4,659	4,264
1989	1,047	3,810	3.64	3,645	3,483
1988	3,456	18,397	5.32	12,727	3,682
1987	3,310	16,260	4.91	10,640	3,215
1986	3,150	13,212	4.19	7,639	2,425
1985	2,967	15,119	5.10	9,025	3,042
6 YEAR AVERAGE			**4.71**		**3,261**

Source: B.C. Ministry of Agriculture, Fisheries and Food,
John Vielvoye, Provincial Grape Industry Specialist

Grape production per acre in British Columbia is exceeded by California and Washington State (Table 12). Producers are increasing the use of higher plant density per acre; alternate trellis construction; favourable site selection; good management to improve quantity and quality of grapes produced.

TABLE 12 Comparative Wine Grape Statistics in Various Areas of North America – 1990

Year	Average Yield/Acre (tons)	Price/ton[1] ($)	Quantity Crushed (tons)
British Columbia	4.71	909 [2]	4,827
Ontario	4.40	775 [2]	30,422
Arkansas	2.32	372	1,000
California	7.44	334	2,570,707
Michigan	4.18	440	2,200
New York	4.03	315	54,700
Oregon	1.79	960	7,000
Pennsylvania	5.30	374	8,000
Washington	6.04	561	38,000

[1] Value in Canadian dollars at $1.20/U.S. dollar.
[2] Includes adjustments as a result of the Free Trade Agreement.

Source: B.C.Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist Washington Grape Report, January 28, 1991

California

Events in grape producing areas such as California, Oregon and Washington State strongly influence supply and demand of grapes and grape products such as bulk wine, grape concentrate, and varieties that can be substituted for, or blended with another (eg. blending of Chenin Blanc or French Colombard with Chardonnay will help to keep prices of these blending grapes at reasonable levels).

The California grape and wine industry has had a history of years of high production and low prices followed by years of low production and high prices since the end of prohibition (1919-1933). The California wine market is currently undergoing significant changes as a result of increased erosion of generic jug wine sales; competition from imports; continued consumer preference for premium varietal wines instead of non premium wines; social issues such as alcohol relationships to pregnancy, association with drugs, sulfite labeling requirements, neo-prohibitionism; the lack of a wine

fad such as coolers; increased taxation and low prices. Wine production in California is forecast at 411 million U.S. gallons in 1991, up from 377 million gallons in 1990.

The effect of these events on grape production in the hot climate areas of California has resulted in large surpluses of grapes (up to 160,000 tons less demand from the southern San Joaquin County through Kern County), acreage removals (Colombard and Chenin Blanc), or conversions to other crops (e.g. cotton, table grapes, apple, peach, plum and nectarine orchards); conversions to specialty grapes such as Shiraz, Viognier, Cabernet Franc, Nebbiolo, Malbec, Sangiovese, special clones of Pinot Noir, Petit Verdot, Charbono, Aleatico, Refosco and Mondeuse; diversions to the production of grape concentrate (up to 450,000 tons faces stiff competition from imports), juice, brandy and offerings of low priced grapes to wineries. Despite these negative impacts on the California industry, non-bearing wine grape acreage is reported to be 37,230 acres.

There is a relocation of production taking place from the central and southern vineyard areas to vineyards in coastal and northern California counties where better quality wine grapes are produced at prices ranging from $200 to $800/ton (U.S.) higher than the weighted average state price.

TABLE 13 Weighted Average Grower Returns Per Ton Delivered Basis for Wine, Concentrate, Juice, Vinegar and Beverage in California (1990)

Grape Pricing District	White Grapes $ Value(1)	Red Grapes Value
1	986	751
2	848	1,063
3	1,228	1,104
4	1,484	1,495
5	632	655
6	1,176	823
7	823	845
8	1,025	929

(Cont'd)

Grape Pricing District	White Grapes $ Value(1)	Red Grapes Value
9	434	342
10	703	613
11	306	430
12	233	251
13	181	214
14	152	208
15	180	182
16	506	374
17	411	612

(1) Value in Canadian Dollars at $1.20/U.S. dollar

Source: Final Grape Crush Report - 1990 Crop, California Dept. of Food and Agriculture

TABLE 14 Non Bearing Wine Grape Acreage California (1989)

Variety	Acreage
Cabernet Sauvignon	6,796
Chardonnay	15,849
Grenache	731
Merlot	2,232
Pinot Noir	777
Sauvignon Blanc	746
Zinfandel	7,859
Other Red	1,048
Other White	1,192
TOTAL	**37,230**

Source: California Grape Acreage, 1989

Six major trends are identified that affect the wine industry in California. These are:

INDUSTRY STRUCTURE

1. Consolidation of distribution at wholesale and retail levels.
2. Maturation of industry reflected in arrival of skilled marketing management and seasoned sales staff.

DEMAND

3. Health orientation and aging of consumers (drinking less, but better quality).
4. Polarization of consumer demand driven by complexity of choice; best perceived value or highest perceived quality.

PRODUCTION

5. Winery technology: large scale production of highest quality.The boutique barrier to quality has been broken.
6. Vineyard technology: productivity revolution (quality and quantity). Brought by improvements in clonal selection, canopy management, vine spacing, recognition of appellation and vineyard location.

Source: Wines and Vines, January 1990

California crushed 2,570,707 tons of grape in 1990 which is approximately equal to the crush in 1987 and 1984. The 1990 crush includes 266,059 tons of raisin grapes, 169,513 tons of table grapes and 2,135,133 tons of wine grapes. (Source: Final California Grape Crush Report 1990 Crop. March 11, 1991)

Seven hundred of the 1,400 wineries in the U.S.A. are located in California. From 1984 to 1987 California wine production averaged 405.6 million U.S. gallons, or 90.1% of the total U.S.A. production. (Source: Trade and Industry Index. Dialogue File 148.)

Oregon

The Oregon industry continues to expand. Eighty percent of wine sales are in Oregon, 7% in Washington, 10% in other states and 3% is exported to other countries.

In 1990, Oregon wine sales outpaced the supply of Chardonnay, White Riesling, Pinot Noir and Pinot Gris. All other varieties were either near the demand/supply needed or are in surplus. A succession of 3 years of short crops due to climate is the blame for low yields per acre and crop shortages.

Oregon wine production totalled 1,378,000 U.S. gallons in 1991 and 1,174,956 U.S. gallons in 1990. There were 88 bonded wineries in 1990. Wine sales were as follows:

TABLE 15 Oregon Wine Sales

Year	Sales (U.S. gallons)
1990	794,328
1989	779,800
1988	771,197
1987	677,353

Source: Oregon Agricultural Statistics Service

Oregon is a small grape and wine producing area located between the giant California industry and Washington State. Yet Oregon is able to compete and expand on the basis of image, created by advertising and production of quality wines and a cohesive wine and grape industry. Prices paid for premium quality grapes in Oregon ranged from $ 400/ton for Riesling to $ 1000/ton (U.S.) for Pinot Noir in 1990. Oregon crushed 5,869 tons in 1990, a decrease of 966 tons over 1989.

TABLE 16 Oregon Wine Grape Prices - 1990

Variety	Price per ton[1]
Cabernet Sauvignon	$ 930
Chardonnay	1,128
Chenin Blanc	576
Gewurztraminer	720
Merlot	924
Muller Thurgau	570
Pinot Gris	1,104
Pinot Noir	1,200
Sauvignon Blanc	762
Semillon	618
White Riesling	582
Zinfandel	720
All others	758

(1) Value in Canadian Dollars at $1.20/U.S. dollar

Source: 990 Oregon Winery Report
Oregon Agricultural Statistical Service

TABLE 17 Non Bearing Wine Grape Acreage Oregon (1990)

Variety	Acreage
Pinot Noir	736
Chardonnay	389
Pinot Gris	142
White Riesling	96
Gewurztraminer	83
All Others	336
TOTAL	**1,782**

Source: 1990 Oregon Vineyard Report.

Washington

Washington is the second largest vinifera wine producing state in the U.S.A. Wine production in Washington State is estimated at 6,080,000 U.S. gallons in 1991. Instate market share for Washington wines in 1990 was 16%. However, market share of premium wine sales in Washington State is estimated at 75%.

Most of the existing wine grape acreage in Washington State was planted by 1984. Acreage has increased slowly between 1984 and 1990. Large expansions are planned by the largest winery in 1991/92. Major varieties planted are Chardonnay, Chenin Blanc, Cabernet Sauvignon, Merlot, Riesling and Semillon. The average price paid for grapes in 1990 ranged from $ 219/ton for Riesling to $ 864/ton (U.S.) for Chardonnay.

TABLE 18 Washington State Grape Prices – 1990

White Varieties	Average price/ton[1]
White Riesling	$ 263
Chardonnay	1,037
Chenin Blanc	252
Sauvignon Blanc	427
Semillon	293
Gewurztraminer	284
Muscat Canelli	352
Others	764

Red Varieties	Average price/ton[1]
Cabernet Sauvignon	935
Merlot	946
Pinot Noir	659
Lemberger	449
Others	764

(1) Value in Canadian dollars at $1.20/U.S. dollars

Source: 1990 Washington Grape Report, Wash. Agricultural Statistics Service

TABLE 19 Major Varieties Planted (1989) Washington State

Variety	Acreage	% of Acreage
Cabernet Sauvignon	1,020	10.0
Chardonnay	1,566	15.4
Chenin Blanc	1,205	11.9
Gewurtztraminer	536	5.3
Merlot	719	7.1
Sauvignon Blanc	792	7.7
Semillon	667	6.5
White Riesling	2,653	26.1
All Others	1,014	10.0
TOTAL	**10,168**	

Source: Dr. Raymond J. Folwell, Professor of Agriculture Economics, College of Agriculture and Home Economics, Washington State University.

The 1990 production of 38,000 tons was 5,000 tons less than 1989 and 8,000 tons below 1988. Despite crop reductions, Washington has had the potential to produce a 57,000 ton crop of wine grapes since 1986.

In 1986 the industry did not have the winery capacity nor the markets to handle a 57,000 ton crop. Efforts since then have concentrated on increasing winery capacity and grape and wine marketing. British Columbia has been, and continues to be, a target market for Washington grapes and wine. Wine marketing efforts have been successful in increasing sales in both domestic and export markets.

TABLE 20 Average Annual Growth Rate of Washington Wine Sales 1985-1990

	Years					
	1985	1986	1987	1988	1989	1990
Instate	+13	+ 7	+16.6	+20	+19	+ 8
Export	+ 9	+10	+ 4.1	+22	+31	+44
Average	+11	+ 9	+11	+24	+24	+25

Source: Washington Wine Institute

Total sales were 5,029,057 U.S. gallons in 1990. This contrasts with a decline in total U.S. market of 12% over the past three years. There were 91 bonded wineries in Washington in 1990.

Volume and Value

British Columbia grape production was valued at $4.6 million in 1990, an increase of $1 million over the 1989 crop and a decrease of $8 million following the 1988 GWSAAP (Table 21).

TABLE 21 Grape Production and Disposition

Grape Use	1990 Tons	1990 Value $'000	1989 Tons	1989 Value $'000	1988 Tons	1988 Value $'000
Processed	4,827	4,390	3,599	3,427	17,981	12,589
Fresh Sales	129	146	111	128	111	113
Local Sales	137	123	100	90	304	24
Total	**5,093**	**4,659**	**3,810**	**3,645**	**18,397**	**12,727**

Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist

The average value of wine grape production in British Columbia over a five year period ending 1989 places grapes as the fifth most valuable fruit crop, exceeded in value on a five year average only by apples, raspberries, cranberries, and blueberries. Out of 81 British Columbia commodity values recorded to 1989, grapes were the 19th most valuable farm commodity produced in British Columbia.

Source: B.C.B.N. network

The value of grape production depends upon the volume of various classes of grapes produced, as well as the quality characteristics of the fruit (Table 22). About 95% of B.C. grape production is sold to wineries, with the remaining crop sold as fresh fruit through organized and non-organized marketing for use as fresh fruit or for home wine making (Table 21).

TABLE 22 Grape Standard Guidelines

Premium Grade*	Sugar - Degrees Brix 70% paym't / 80% paym't		Total Acids - g/l +10% paym't / +20% paym't		pH +10% paym't / +20 paym't	
Red Hybrids & Vinifera	16.8 - 19.7 23.3 - 26.2	19.8 - 23.2	4.80 - 7.79 11.21 - 14.20	7.80 - 11.20	2.85 - 3.04 3.36 - 3.55	3.05 - 3.35
White Hybrids & Vinifera	15.8 - 17.7 22.3 - 25.2	17.8 - 22.2	4.80 - 7.90 10.21 - 14.20	7.80 - 10.20	2.85 - 3.04 3.36 - 3.55	3.05 - 3.35

* Grapes whose best results place within each of these categories receive the indicated % of the variety reference price.

Standard Grade*	Sugar - Degrees Brix	Total Acids - g/l
Red Hybrids & Vinifera	15.8 - 26.2	Not to Exceed 16.00
White Hybrids & Vinifera	15.8 - 25.2	Not to Exceed 16.00

* 70% of the Variety reference price.

Utility Grade*	Sugar - Degrees Brix	Total Acids - g/l
Red Hybrids & Vinifera	16.8 - 26.2	16.01 - 18.00
White Hybrids & Vinifera	15.8 - 25.2	16.01 - 18.00

* 70% of the Variety reference price - declining in subsequent years.

Source: The British Columbia Grape Marketing Board

Prices for commercial wine grapes have historically been established through negotiation between wineries and the Grape Marketing Board. These prices are fixed until the end of the 1994 harvest at 1987 prices. A 4% cash cost escalator was provided by the Grape and Wine Sector Adjustment Assistance Program and is payable on a per acre basis added for each year until the 1994 grape harvest is complete (Table 23).

TABLE 23 Reference Price Summary

Group/Variety		Calculated Reference Price	Rounded Reference Price (to nearest $5)
7	Foch	$ 555.35	$ 555
9	Baco Noir	933.58	935
	Chancellor	571.79	570
9	Average (Insufficient Data)		
	Chelois	685.40	685
11	Cayuga White	700.29	700
	Siegfriedrebe	855.10	855
	Sovereign Aurelius	669.66	670
	Sovereign Opal	749.08	750
11	Average (Insufficient Data)		
	GM31158	768.35	770
	Pollux	768.35	770
12	Seyval Blanc	778.19	780
	Seyval Villard	716.41	715
	Verdelet	690.45	690
	Vidal	759.30	760
14	Johannisberg Riesling	922.97	925
15	Auxerrois	842.87	845
	Bacchus	885.06	885
	Chardonnay	947.68	950
	Chenin Blanc	977.47	975
	Ehrenfelser	907.76	910
	Kerner	965.98	965
	Optima	815.92	815
	Oraniensteiner	1175.15	1175

TABLE 23 (cont'd) Reference Price Summary

Group/Variety	Calculated Reference Price	Rounded Reference Price (to nearest $5)
Pinot Gris	890.32	890
Pinot Noir	915.15	915
Scheurebe	841.25	840
Semillon	863.44	865
15 Average (Insufficient Data)		
Gewurtztraminer		
Madeleine Sylvaner		
Matsvani		
Merlot		
Miscellaneous Vinifera		
Muller Thurgau		
Ortega	$912.78	$915
Pearl of Csaba		
Pearl of Zala		
Pinot Blanc		
Pinot Meunier		
Rkatsiteli		
Rotberger		
Schoenburger		
Sereksia Chornaya		
Siegerebe		

Source: The British Columbia Grape Marketing Board

Revised November 20, 1989

Supply and demand will set grape prices for 1995 and onward. A comparison of average wine grape prices in other major wine grape areas is presented in Table 24.

TABLE 24 Average (1990) Wine Grape Prices $/Ton in Canadian Dollars at $1.20/ US Dollar

Variety	B.C.	Ontario	Wash.	Oregon	Calif.
All varieties	909	775	470	960	366
Riesling	925	775	263	582	602
Pinot Blanc	915	1109	N/A	758	830
Chardonnay	950	1705	1037	1128	1354
Gewurztraminer	915	1109	237	720	716
Muller Thurgau	915	1109	N/A	570	N/A
Pinot Gris	890	1109	N/A	1104	N/A
Pinot Noir	915	1109	549	1200	1015
Merlot	915	1109	947	924	1464

Source: B.C. Grape Marketing Board
Ontario Grape Growers' Marketing Board
Washington Grape Report, January 28, 1991
Oregon Winegrowers' Association
California Department of Food and Agriculture

A comparison of variety purchases appears to indicate an industry preference for vinifera grapes (Table 23). White grapes are more widely planted. A demand for red vinifera grapes has been established. White grapes accounted for 83% of all grapes sold to wineries in 1989 and 87% of all grapes sold to wineries in 1990 (Table 25).

TABLE 25 Color of Grapes Shipped to Wineries (in Percent)

	Years					
Colour	1990	1989	1988	1987	1986	1985
White	87	83	71	69	60	49
Red	13	17	29	31	40	51

Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist

The three major white wine grape varieties delivered to wineries in 1990 accounted for 42% of total wine grape production. The three major red wine grape varieties accounted for 10% of total wine grape production (Table 26).

TABLE 26 Relative Importance of Grape Varieties Delivered to Wineries in 1990

Variety	Percentage of the Total Crop	Color
Verdelet	19	White
Riesling	13	White
Pinot Blanc	10	White
Bacchus	5	White
Vidal 256	5	White
Gerwurztraminer	4	White
Chardonnay	4	White
Chancellor	4	Red
Ehrenfelser	4	White
Seyval Blanc	3	White
Baco Noir	3	Red
Marachal Foch	3	Red
Chenin Blanc	2	White
Pinot Noir	2	Red
Auxerrois	2	White

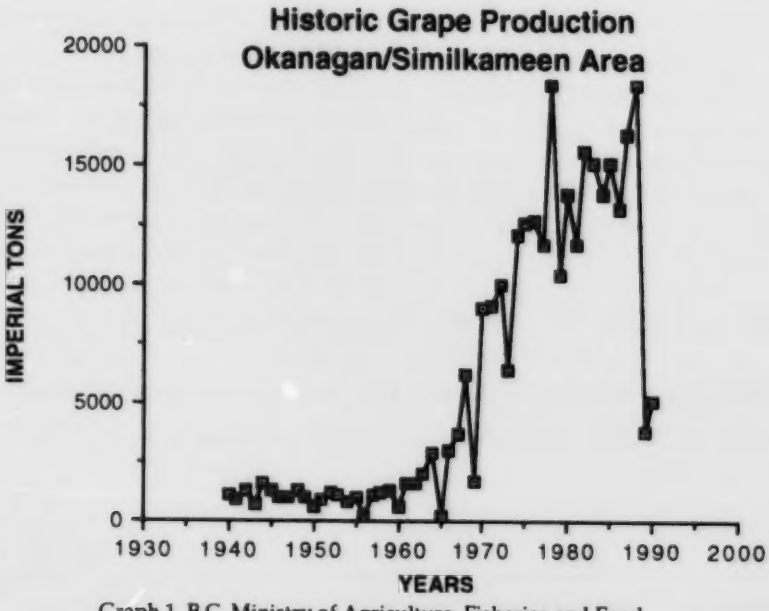
Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist

Climate

The climate in the Okanagan and Similkameen viticultural areas is governed by the region's location in the lee of the Coast Mountain Range. In contrast to the coastal areas of British Columbia, the climate of the Okanagan and Similkameen Valleys is very dry. It characteristically has hot, dry summers, increased hours of sunshine, low humidity, and crisp, largely overcast days and nights during the winter with air temperatures below freezing for about ten weeks. Cold arctic air occasionally intrudes into the valleys during the winter, allowing temperatures in grape growing areas to reach -27°C. Heavy snowfall often occurs.

The dry, hot summers lead to soil moisture deficits during the growing season. Irrigation is required for grape production.

Source: Atlas of Suitable Grape Growing Locations in the Okanagan and Similkameen Valleys of British Columbia
Soils of the Okanagan and Similkameen Valleys, MOE Technical Report 18.



Graph 1. B.C. Ministry of Agriculture, Fisheries and Food
John Vielvoye, Provincial Grape Industry Specialist

Annual grape production has fluctuated due mainly to low temperatures occurring at any time from mid November to mid April. Since 1940 severe fluctuations in production as a result of such adverse climate conditions occurred in 1959, 1964, 1969, 1972, 1974, 1978, 1982, 1988 winter (Graph 1). Crop reductions will occur in 1991 due to the 1990/91 winter.

The weather of the Vancouver Island viticulture area is dominated by low pressure systems in the winter and high pressure systems in the summer. Solar radiation decreases from southeast of Vancouver Island to the northwest. Summer temperatures are cool to mild; winter temperatures are relatively mild. The freeze free period is relatively long (Table 27). The east coast of Vancouver Island, located in the rain shadow of the Vancouver Island ranges and Olympic mountains, is substantially drier than the west coast. Although the viticulture area receives substantial precipitation in the winter months, the dry summer months create a water deficit.

Source: Soils of Southern Vancouver Island, MOE Technical Report 17.

The climate of the Fraser Valley viticulture area is characterized as having warm, rainy winters and relatively cool, dry summers. The winters have a steady flow of low pressure systems moving eastward from the Pacific Ocean, producing among the cloudiest and rainiest conditions for any part of Canada. In contrast, the summers have frequent long periods of sunny weather. Temperatures are warm and rainfall is low. Soil moisture deficits develop frequently and irrigation is helpful on well drained vineyard soils.

Source: Soils of the Langley-Vancouver Map Area, RAB Bulletin 18

TABLE 27 Selected Climatic Events in Viticultural Areas of British Columbia

Viticulture Area	Climatic Events: Heat Units	Frost Free Period (days)	Extreme Temp. (°C) Max	Min	Annual (Cm) Rainfall/Snow		Hours of Sunshine	Mean (°C) Daily July Temp
Okanagan Valley								
Kelowna	1026 to 1107	150 to 170	38.9	-36.1	23.4	83.3	1981	19.8
Oliver	1400	138 to 190	42.8	-30.6	21.8	56.4	2036	23.1
Similkameen Valley								
Keremeos	1383	173 to 186	41.1	-30.6	19.5	64.5	N/A	21.7
Fraser Valley								
Abbotsford	842 to 1013	170 to 178	37.8	-21.1	141.2	73.9	1819	17.1
Chilliwack	969 to 1025	182 to 213	37.8	-21.1	161.7	83.1	N/A	18.0
South East Van. Island								
Duncan	790 to 1013	152 to 176	41.1	-17.0	98.6	59.4	1829	17.8
Sidney	772 to 930	231	34.4	-13.9	80.2	35.3	2064	16.6

Source: Climate of British Columbia.
Climate Normals, 1951-1980
Climatic Summaries for Selected Meteorological Stations
Frost Data - 1941-1970

Number of Producers/Size of Operation/Productivity

Until 1959, the major area for grape production in British Columbia was the Fraser Valley. Floods and severe cold temperatures in that region, plus more favourable climatic conditions for varieties at that time, resulted in a relocation of production over time to the Okanagan area. By 1960 the Okanagan /Similkameen areas reported 572 acres of grapes. In 1990 these areas had 14 vineyards that were 20 acres or larger out of 127 vineyards (Table 28 and 29).

TABLE 28 Number of Vineyards in Excess of 20 Acres (Okanagan/Similkameen Areas)

Year	No of Vineyards larger than 20 acres	Total No. Vineyards
1972	32	175
1979	28	179
1989	30	181
1990	14	127

TABLE 29 Size Distribution of Vineyards in the Okanagan/Similkameen Area

Acres	No. of Vineyards 1979	No. of Vineyards 1990	% of 1990 Acres in Various Sizes	Accumulated 1990 Acreage
0 - 3	34	36	29	93
4 - 10	84	57	47	567
11 - 20	33	19	14	904
21 - 30	8	8	7	1104
31 - 40	8	3	2	1213
41 - 50	2	1	<1	1256
51 - 60	5	0	0	1309
61 - 70	0	1	<1	1377
71 - 80	1	0	0	1377
81 - 100	1	0	0	1377
101 - 150	1	0	0	1377
151 - 200	0	1	<1	1559
201 - 250	2	0	0	1559

Source: B.C. Ministry of Agriculture, Fisheries and Food, John Vielvoye, Provincial Grape Industry Specialist 1979 Grape Acreage Survey; B.C. Grape Marketing Board

Cost of Grape Production

The cost of vineyard establishment and grape production for the Okanagan region is estimated from updated consensus data developed in August 1986 by the Economics Branch of the B.C. Ministry of Agriculture and Fisheries. It is based on Producers' Costs and Returns Study (CDS 261) completed in April 1982. The study reflects the cost of establishing a 21.5 acre vineyard reaching full production in the 4th growing year. The study assumes 3 tons/acre production in the 3rd year of establishment and 5 tons/acre at full production in year 4 and onward. The 10 year average for grape production is 4.75 tons/acre. However, good management and site selection should make a long term average of 5 tons/acre realistic. Concensus data arrived at an establishment cost over the 3 year period of $13,694/acre and an annual total cost of $4,442 per acre/year (Tables 30 and 31). Net farm income was calculated to be $1,404/acre (Table 32). Using the 1986 data, the replacement costs for buildings, machinery and established vines and trellis was calculated to be $15,787/acre in 1991 (Table 33).

TABLE 30 Establishment Cost Summary Statement for 21.5 Acre Vitis Vinifera Vineyard in the Okanagan/Similkameen Area. Years 1-3

Item Description	Total Cost/Acre 3 Years	% of Total Costs	Total Accumulated Costs for 21.5 Acres
Total Cash Costs	11,109	81	238,864
Total Non Cash Costs[1]	2,585	19	55,586
Total Costs	13,694	100	294,450
Less: Expected Returns in Year 3 (@ $770.56/ton)	2,311		49,701
Total Investment For Established Vines and Trellis	11,383		244,749

Source: BCMAFF updated Consensus Data based on study CDS 261

[1] Depreciation and interest on investment.

TABLE 31 Vitis Vinifera Vineyard in Full Production

Production Costs

Description	Total Cost/Acre
Total cash expenses	$ 2,203
Depreciation	247
Amortized Establishment Cost	1,406
Interest on Land Investment & Machinery	586
Annual Total Cost per Acre	4,442

Source: BCMAFF updated Consensus Data based on study CDS 261

TABLE 32 Vitis Vinifera Vineyard in Full Production/Income and Expense Summary Statement

Description	$/Acre	Total for 21.5 Acres
Total Income	3,853	82,835
Total Cash Expenses	2,203	47,359
Net Cash Income	**1,650**	**35,476**
Less Depreciation:		
- Machinery	229	4,932
- Buildings	17	374
Net Farm Income	**1,404**	**30,170**

Source: BCMAFF Updated Consensus Data based on study CDS 261

Economic Activity

The grape and wine industry contributes significantly to the economic activity of British Columbia through employment, the utilization of materials and supplies, fuel, transportation, packaging (Table 33-A, and 33-B), sale of grapes (Table 21), sale of wine (Table 49 and 50), and through its influence on tourism.

Grape Industry

TABLE 33 Industry Investment Cost Building, Machinery, Vines and Trellis

Description	$ Value
Buildings	603,081
Established Vines and Trellis	18,088,733
Machinery	3,437,783
Irrigation Equipment	2,069,395
Vehicle	886,884
Total	**25,085,876**

Source: BCMAFF Planning for Profit Factsheet - Spring 1991

TABLE 33-A Grape Industry Investment

Investment Items	
Total Number of Employees:	
- Permanent	150
- Part Time	300
Total Wages Paid	$1,528,170
Annual Operating Expenses	1,774,830
Value of vineyard and facilities including equipment	25,085,876
Taxes Paid:	
- Property	67,500

Wine Industry

TABLE 33-B Wine Industry Investment

Investment Items	
Total Number of Employees:	
- Permanent	316
- Part Time	156
Total Wages Paid	$12,396,999
Annual Operating Expenses	24,661,551
Total Cost of Fuel and Electricity	630,581
Total Distribution Costs (eg. transportation, etc.)	3,924,380
Value of Plant and Facilities including equipment	42,083,334
Cost of Materials and Supplies (eg. packaging, production supplies, services)	31,205,857
Taxes Paid:	
- Federal (on sales)	25,525,223
- Provincial (on sales)	2,741,621
- Property	698,444

Tourism

Non-resident, overnight visitors travelling through the Okanagan-Similkameen region totalled 1,044,420 persons and provided the region with an additional income of $120 million in 1989 (Table 31). Tourism in 1989 on a provincial basis was valued at $2,400 million (source: Okanagan-Similkameen Tourist Association). The contri- bution of the grape and wine industry to attracting tourists, or the share of tourist dollars spent on wine, has not been quantified. Enquiries at Chamber of Commerce tourist offices about winery tours are said to exceed 50% of all enquiries. Most of the enquiries are said to come from people touring and from those staying with family or friends (Tables 36 and 37).

TABLE 34 Origin of Visitors and Share of Expenditures to the Okanagan-Similkameen Area

Source	Number of Persons	Share of Expenditures(%)
Alberta	396,839	37
Ontario	82,790	11
Other Canadian	141,519	12
Subtotal - Canada	**621,148**	**60**
Washington	134,730	8
Oregon	42,741	2
California	50,815	4
Other West U.S.A.	70,619	5
Other U.S.A.	25,307	2
Subtotal - U.S.A.	**324,212**	**19**
Overseas	129,187	19
TOTAL	**1,044,420**	**100**

Source: Okanagan-Similkameen Tourist Association

The pattern for visitations to the region is seasonal, with 12% coming during the winter and 39% arriving in summer (Table 35).

TABLE 35 Season of Visitations (%)

Season	Region	Provincial
Winter	12	19
Spring	23	26
Summer	39	31
Fall	26	24

Source: Okanagan-Similkameen Tourist Association

A significant portion of visitors to the region stayed with friends or relatives (43% on average). The main purpose of visits to the region is to visit friends/relatives/personal and touring (Table 36).

TABLE 36 Main Purpose of Visitors to the Region (%)

Purpose	Region	Province
Conference	1	6
Other Business	6	11
Visit friends/relatives/personal	43	33
Touring trip	32	26
City trip	1	3
Outdoors/wilderness/adventure	8	8
Resort Vacation	7	8
Other	2	5
TOTAL	**100**	**100**

Source: Okanagan-Similkameen Tourist Association

Activities of visitors to the region are primarily to spend time with friends and relatives followed by shopping and spending time at the lakeshore. The average per day expenditure was $36.04 per person for the Okanagan-Similkameen area and $49.95 in the Cowichan Valley where the Vancouver Island wine and grape industry is centered. The average per day expenditure on a provincial average is $54.19.

TABLE 37 Activities of Visitors to the Region (%)

Activity	Region	Province
ATTENDED:		
- conference/convention	1	2
- sporting events	3	2
- festivals/cultural	6	5
- other	1	1
ACTIVITIES:		
- shopping	35	36
- tours	8	9
- sightseeing	33	42
- passing through	20	17
- business	5	10
- outdoors	27	23
- skiing	4	4
- other sports	13	12
- nightlife	8	11
- other	2	2

(cont'd.)

Activity	Region	Province
VISITED:		
- beach/lakeshore	35	21
- museum/historic	7	14
- fair/amusement park	5	3
- gardens/park	12	20
- friends/relatives	50	37
- other	2	2

Source: Okanagan-Similkameen Tourist Association

Producer Organization/Market Structure

Grape growers are represented by three different organizations. The Association of British Columbia Grape Growers is composed of all grape growers, including those who produce only fresh market grapes. The Association was established in 1961. The objectives of the Association are:

(a) to promote the interests of grape growers generally by disseminating information in respect of varieties, cultural practices, harvesting methods, prices and marketing;

(b) to promote agreement among growers in representations to governments at all levels;

(c) to co-operate with government at all levels with a view to improving the economic welfare of the grape growing industry;

(d) to co-operate with other horticultural or agricultural organizations of primary producers with similar objectives, as the directors may consider advisable;

(e) to assist grape growers in procuring supplies for the industry;

(f) to promote the production of certified, virus-free, true-to-name grape plants and to make such certified plants available to growers by whatever method appears most practical;

(g) to encourage and promote close co-operation with wineries in respect of varieties of grapes to be planted to meet winery needs.

Membership is voluntary for non-wine grape producers. Wine grape producers become members through licensing by the Grape Marketing Board. The Association executive consists of 5 producers elected at an annual meeting.

The B.C. Grape Marketing Board was established in 1973 under the Natural Products Marketing Act. The Board represents all grape producers licensed to sell grapes to B.C. wineries. The Board possesses various powers to promote, control and regulate the grape industry, and to negotiate

with wineries and government, programs, policies, prices and standards for the grapes delivered to wineries.

The Board consists of five producers elected annually by licensed grape producers. In 1990, the president of the Association of B.C. Grape Growers and the chairman of the Grape Marketing Board were the only members not part of both organizations. The Board has participated in the formation and operation of the British Columbia Wine Institute.

The British Columbia Wine Institute was created in 1989 by the British Columbia Wine Act. The Institute draws grape growers and wineries into one organization. Representation consists of two grape growers, five wineries (one Farm Winery, two Estate Wineries, two Commercial Wineries) and one government observer. The Institute possesses powers to develop wine standards, enforce wine standards, develop and enforce appellation criteria, promote B.C. wines, raise funds and represent the B.C. premium wine industry.

To date the principal activity of the Institute has been to adopt wine standards for British Columbia, and the promotion of wines produced exclusively from British Columbia grown grapes under a Quality Vintners Alliance (VQA) logo that guarantees wine standards as well as minimum wine quality standards.

There are 21 wineries in British Columbia (Table 38). Size and classes of wineries are determined by licence.

TABLE 38 Number and Type of Wineries

Winery Type	1990	1985
Major	6	7
Estate	10	1
Farm	5	0
TOTAL	**21**	**8**

Basic Qualifications for Farm Winery Licence

The smallest wineries are farm wineries. There are five farm wineries. Basic qualifications for a farm winery licence are:

- minimum vineyard size of two acres owned and operated by the applicant;
- minimum wine production of 4,540 Litres - maximum wine production of 45,400 Litres;
- Source of grapes must be 100% B.C. grown, of which 75% must come from the winery's farm;
- within a year of licensing all wine must be produced and bottled on site;
- retail sales through the LDB stores are not expected because of the small volume of wine.

Basic Qualifications for Estate Winery Licence

The mid-sized wineries in British Columbia are called Estate Wineries. There are nine Estate Wineries.

Estate Wineries are wineries that must meet the following specifications:

- have a minimum size vineyard of 20 acres owned and operated by the applicant;
- have a minimum wine production of 34,000 Litres and a maximum wine production of 181,000 Litres;
- must source 100% of its grapes from B.C., and a minimum of 50% from its own vineyard;
- within one year of licensing all wine must be produced and bottled on site.

Retail sales through the LDB are possible upon application.

Basic Qualifications for Commercial (Major) Winery Licence

Major wineries are those with a commercial licence. There are six major wineries in British Columbia. A licensed major winery may take many forms. The licence is issued to individuals involved in the manufacture, packing and sale of cider, non-grape fruit wines, sake and mead, in addition to grape wine manufacturers who do not qualify, or who do not desire an estate or farm winery licence.

There is no vineyard acreage required. There is no specific minimum or maximum allowable annual production. Major wineries may apply to have their products sold in government liquor stores.

Major wineries are not restricted to source of raw materials, with the exception of wines produced to meet VQA standards. All wines for VQA recognition must be made from 100% British Columbia produced grapes.

All wineries are permitted one on-site store and sales direct to clients.

Canadian Wine Market

There are 65 wineries in Canada (July 31, 1991) located in seven provinces (Table 39).

TABLE 39 Canadian Wineries by Province/Territory

Province	Number of Wineries
Alberta	3
British Columbia	20
Ontario	24
Prince Edward Island	0
New Brunswick	1
Newfoundland	0
Northwest Territories	0
Nova Scotia	6
Manitoba	1
Saskatchewan	0
Quebec	10
Yukon	0

Source: Canadian Wine Institute

Canada ranks 27th out of 41 in wine consumption in the world (Table 40). The 10 largest wine producing countries in order of rank are France, Italy, Spain, Soviet Union, Argentina, United States, West Germany, Romania, South Africa and Portugal (Source: Wines and Vines, July 1991).

Canadian consumption of wines is influenced by its population and regions (Table 40, 41, 42, 44 and Graph 2). Canadian consumers are also price sensitive when purchasing wine.

TABLE 40 Per Capita Consumption by Country by Rank in 1989 (in Litres)

Country	Year 1979	1989[1]	Rank
France	92.82	74.00	1
Italy	90.02	72.11	2
Luxemburg	40.01	61.40	3
Argentina	76.31	54.40	4
Portugal	62.99	53.00	5
Switzerland	45.35	47.73	6
Spain	65.00	47.24	7
Romania	35.51	42.81	8
Austria	35.81	35.20	9
Chile	46.48	35.01	10
West Germany	24.30	26.12	13
Hungary	35.01	20.06	17
Holland	11.96	13.70	20
New Zealand	11.28	12.91	22
Canada	8.37	9.12	27
U.S.A.	14.01	7.99	30
Japan	0.38	0.95	41

[1] preliminary

Source for Calculations: Wines and Vines, July 1991 (U.S. gal. converted to Litres @ 3.7854)

TABLE 41 Canadian Population by Province

April 1/89 to April 1/91 (in '000's)

Province/Territory	Year 1989	1990	1991
Alberta	2,418.4	2,461.1	2,513.1
British Columbia	3,037.0	3,115.7	3,200.4
Ontario	9,559.9	9,710.4	9,877.4
Prince Edward Island	129.7	130.4	130.1
New Brunswick	717.1	722.3	726.1
Newfoundland	570.4	573.2	573.4
Northwest Territories	52.7	53.7	54.3
Nova Scotia	886.6	892.8	898.2
Manitoba	1,085.0	1,089.9	1,094.4
Saskatchewan	1,006.9	999.6	996.2
Quebec	6,685.8	6,755.1	6,829.5
Yukon	25.5	26.1	26.8
CANADA	**26,175.0**	**26,530.3**	**26,919.9**

Source: Quarterly Demographics. Statistics Canada 91-002. First Quarter 1991.

TABLE 42 Per Capita Consumption of All Wine by Province/Territory in Litres (1989-1990)

Province/Territory	Year 1989	1990[1]
Alberta	7.88	7.33
British Columbia	13.11	12.63
Ontario	7.68	7.33
Prince Edward Island	4.29	4.26
New Brunswick	4.65	4.58
Newfoundland	2.89	2.80
Northwest Territories	5.17	4.83
Nova Scotia	5.70	5.45
Manitoba	5.79	5.46
Saskatchewan	4.29	4.04
Quebec	11.45	11.15
Yukon	12.02	11.40
CANADA	8.81	8.47

[1] preliminary

Source: Calculated by John Vielvoye, Provincial Grape Industry Specialist, B.C. Ministry of Agriculture, Fisheries and Food

During the period 1981 to 1985 the consumer price index for wine and cider in containers lagged behind the consumer price index for all food (restaurant and home) (Table 43). Since 1986 this trend changed indicating that the price for wine has increased at a more rapid rate than the price of all food products.

TABLE 43 Consumer Price Index for Wine and Cider in Containers (1986 as a base)

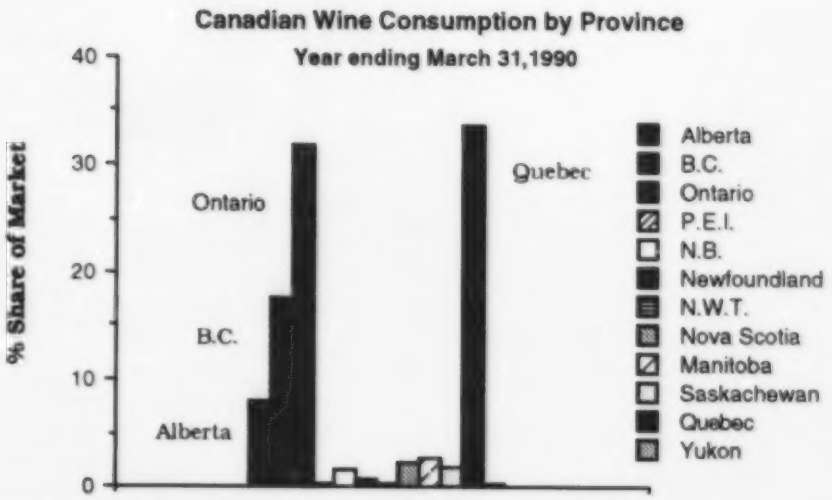
Year	Wine and Cider	All Foods
1981	69.3	79.3
1982	77.0	86.7
1983	83.6	88.3
1984	85.3	93.3
1985	88.5	95.7
1986	102.0	99.4
1987	107.0	105.6
1988	114.0	107.4
1989	114.0	111.3
1990 (to June)	123.2	116.4

Source: Statistics Canada

TABLE 44 Sale of all Wine in Canada by Province in Cases (12 X 750 ML/Case)

Province	1988	1989	1990
Alberta	2,183,916	2,116,966	2,004,119
British Columbia	4,557,526	4,424,405	4,371,450
Ontario	8,530,707	8,157,879	7,908,824
Prince Edward Island	64,367	61,762	61,662
New Brunswick	364,784	370,162	367,546
Newfoundland	192,336	182,982	178,600
Northwest Territories	32,953	30,248	28,841
Nova Scotia	791,217	561,600	540,754
Manitoba	791,217	697,759	661,334
Saskatchewan	555,886	480,434	448,205
Quebec	8,532,710	8,502,126	8,366,132
Yukon	35,417	34,064	33,051
CANADA	**26,422,324**	**25,620,387**	**24,970,508**

Source: Canadian Wine Institute



Graph 2. Source: Canadian Wine Institute

TABLE 45 Sale of Red and White Table Wines in Canada by Country of Origin

Year ending March 31, 1989, to March 31, 1990 in cases (12 X 750 ML/case)

	Red		White	
Country	1989	1990	1989	1990
Australia	65,505	73,032	121,551	165,278
Austria	1,679	997	21,959	14,718
Canada	1,695,636	1,493,193	6,232,568	5,975,762
France	2,089,526	2,103,347	4,159,411	4,356,531
Germany	1,862	1,970	892,008	895,341
Italy	736,933	749,610	1,012,025	1,056,734
Portugal	47,263	45,174	67,547	64,718
South Africa	0	0	3	3
South America	95,097	143,734	21,047	46,252
Spain	208,372	165,591	285,619	239,151
United States	130,751	229,142	350,646	579,898
Eastern Europe	177,594	180,615	187,613	180,755
Other	82,288	73,972	151,045	136,836
TOTAL	**5,332,506**	**5,260,377**	**13,503,042**	**13,711,977**

Source: Canadian Wine Institute

TABLE 46 Sale of Red and White Table Wines Market Share % of Origin

Year ending March 31, 1986 vs 1990

	Red		White	
Country	1986	1990	1986	1990
Australia	0.29	1.39	0.19	1.21
Austria	0.20	0.02	0.94	0.11
Canada	32.92	28.39	43.00	43.58
France	43.42	39.98	30.14	31.77
Germany	0.13	0.04	11.87	6.53
Italy	15.51	14.25	8.55	7.71
Portugal	0.28	0.86	0.32	0.47
South Africa	0.37	0.00	0.22	0.00
South America	0.20	2.73	0.05	0.34
Spain	3.85	3.15	2.25	1.74
United States	1.21	4.36	1.14	4.23
Eastern Europe	0.98	3.43	0.59	1.32
Other	0.65	1.41	0.73	1.00

Source: Canadian Wine Institute

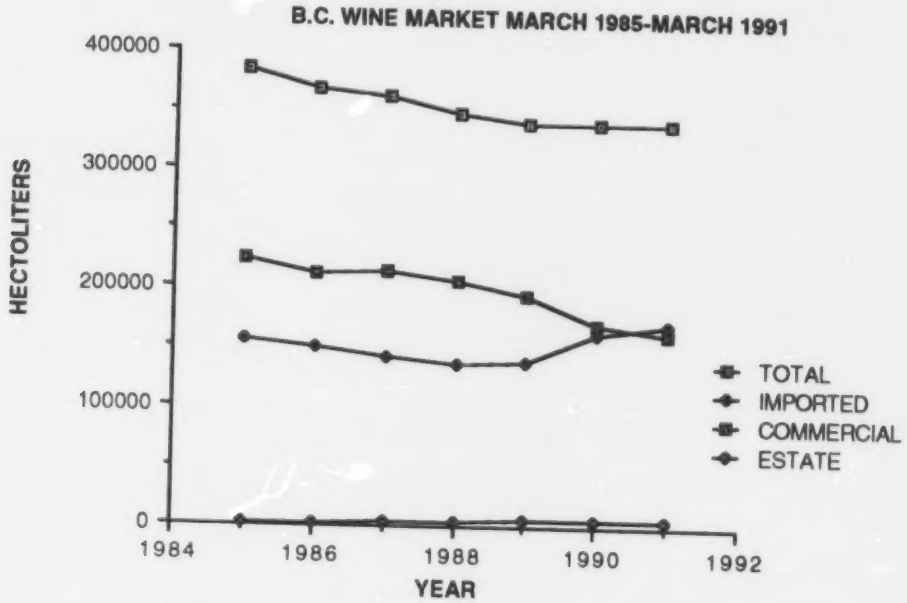
TABLE 47 Sale of Wine in Canada by Province
Year ending March 31, 1986, To March 31, 1990
in cases (12 X 750 mL/case)

	Canadian Wine		Foreign Wine	
Country	1989	1990	1989	1990
Alberta	1,098,760	945,524	1,018,206	1,058,595
British Columbia	2,812,908	2,445,377	1,611,497	1,926,073
Ontario	3,318,142	2,811,075	4,839,737	5,097,749
Pr. Edward Island	42,679	41,553	19,083	20,099
New Brunswick	265,314	258,466	104,848	109,080
Newfoundland	88,780	80,868	94,202	97,732
N.W. Territories	10,746	11,644	19,502	17,197
Nova Scotia	393,361	353,109	168,239	187,735
Manitoba	352,685	320,063	345,074	341,271
Saskatchewan	299,568	262,620	180,866	178,585
Quebec	3,533,376	3,423,373	4,968,750	4,942,759
Yukon	19,018	19,672	14,246	13,379
CANADA	**12,236,137**	**10,980,254**	**13,384,250**	**13,990,254**

Source: Canadian Wine Institute

British Columbia Market

The provincial market for wine is illustrated in Graph 3, and Tables 48, 49, 50, 51, 52. There is an overall decline in the B.C. wine market since 1986 of 2.15 million Litres (Table 49). Increased competition, stringent enforcement of drunk driving laws, health concerns, shift in consumer demand to better quality table wines,and higher wine prices are all factors for this decline in consumption.



Graph 3. Data Source: L.D.B Quarterly Review 1985-1991

TABLE 48 B.C. Liquor Market March 1990 - March 1991

Product	Volume (Litres)	Market Share (Percent)	Sales in Dollars (X 1000)
Beer	254,772,304	79.3	650,775
Wine	34,055,314	10.6	275,102
Spirits	20,561,699	6.4	523,367
Cider/Coolers	11,887,232	3.7	47,129
Special Orders	N/A	N/A	2,717
TOTAL	**321,276,550**	**100**	**1,499,090**

Source: Liquor Control Board Quarterly Review, March 1991

TABLE 49 Sale of Wine Through L.DB.
March 1987- March 1991

Year	Total Litres Wine Sold	Canadian Winery Share of Market (Percent)	Wine as a Percentage of Total L.D.B. Sales
1987	36,199,356	64.8	11.8
1988	34,815,573	60.9	11.4
1989	33,963,209	59.3	11.2
1990	34,000,813	52.2	10.8
1991	34,047,178	49.8	10.6

Source: Liquor Control Board Quarterly Review, March 1991

TABLE 50 British Columbia Wine Market by Category and Volume March 1990 - March 1991

Type of Wine	Canadian Wineries (Litres)	Imported Wine (Litres)	Total Wine (Litres)	Canadian Winery Share of Market (percent)
Table	14,888,863	15,237,278	30,126,141	49.4
Crackling	22,870	33	22,903	99.9
Sparkling	1,153,178	783,271	1,936,449	59.6
Champagne	0	77,821	77,821	0
Sherry	637,857	307,625	945,482	67.5
Port	68,474	78,506	146,980	46.6
Madeira	0	5,664	5,664	0
Aperitif/ Vermouth	62,823	322,669	385,492	16.3
Kosher	0	10,620	10,620	0
Dessert	39,912	11,505	51,417	77.6
Fruit	51,056	21,017	72,073	70.8
Flavoured	13,641	512	14,153	96.4
Gift Packs	12,497	7,987	20,484	61.0
Montilla	0	25,526	25,526	0
Sake	0	205,456	205,456	0
Other	517	0	517	100
Total	**16,951,688**	**17,095,490**	**34,047,178**	49.8

Source: Liquor Control Board Quarterly Review. March 1991

TABLE 51 **British Columbia Wine Market by Value (X 1,000) March 1990 - March 1991**

Type of Wine	Canadian Value (Dollars)	Imported Value (Dollars)	Total Value (Dollars)	Canadian Winery Share of Market (percent)
Table	91,523	141,300	232,823	39.3
Crackling	150	0	150	100
Sparkling	7,623	11,451	19,074	40.0
Champagne	0	4,193	4,193	0
Sherry	5,076	4,101	9,177	55.3
Port	567	1,500	2,067	27.4
Madeira	0	130	130	0
Aperitif/ Vermouth	467	3,375	3,842	12.2
Kosher	0	97	97	0
Dessert	325	196	521	62.4
Fruit	320	246	566	56.5
Flavoured	118	3	121	97.5
Gift Packs	109	190	299	36.5
Montilla	0	288	288	0
Sake	0	1,747	1,747	0
Other	7	0	7	100
TOTAL	**106,285**	**168,817**	**275,102**	**38.6**

Source: Liquor Control Board Quarterly Review, March 1991

Greater availability of imported wines at competitive pricing has contributed significantly to the overall decline in share of market for B.C. wineries (Graph 4 & Tables 50, 51, 52). These factors have a direct impact upon the kind and quality of grapes from British Columbia producers. Winery ability to continue paying today's prices in the future will be affected by the weighted average prices paid in other areas. World wide weighted average grape prices have been lower than prices paid for premium grapes in B.C. Many other areas also have access to large quantities of table and raisin grapes (e.g., California), which further reduces the average price paid for grapes crushed by wineries.

Graph 4. Data Source: L.D.B. Quarterly Review

TABLE 52 **British Columbia Table Wine Market by Country of Origin,**
March 1990 - March 1991

Country	Volume (Litres)	Market Share (percent)	Value (x 1000)	Market Share (percent)
Australia	1,228,197	4.0	14,496	6.2
Canada	14,888,863	49.4	91,523	39.3
France	4,715,188	15.7	46,915	20.1
Germany	1,134,646	3.8	10,841	4.7
Italy	2,059,486	6.8	18,044	7.8
U.S.A.	3,789,693	12.6	32,870	14.1
Others	2,310,068	7.7	18,134	7.8
TOTAL	**30,126,141**	**100.0**	**232,823**	**100.0**

Source: L.D.B. Quarterly Review. March 1991

TABLE 53 **British Columbia Table Wine Market**
Value per Litre of Retail Sales
March 1990 - March 1991

Country	Value ($)/Litre of Retail Sales
Australia	11.80
Canada	6.15
France	9.95
Germany	9.55
Italy	8.75
U.S.A.	8.67
Others	7.85
AVERAGE	**7.73**

Source: Liquor Distribution Branch Quarterly Review, March 1991.

Taxation and Markup

The federal government taxes and the provincial government marks up wines purchased from wineries for resale to its customers. The federal excise tax on all table wine is $0.5122/litre. In addition, wineries must charge their customers the federal 7% Goods and Service Tax (G.S.T.). Some customers are permitted to claim this tax to obtain a rebate. Federal import duties for table wine are $0.03/litre for wines from the U.S.A., and $0.044/litre for non U.S.A. imported wine. The G.S.T. is also added to imported wine. The provincial government markup schedule effective January 1, 1991, used to calculate retail store prices, is as follows:

TABLE 54 British Columbia Liquor Distribution Branch Markup Schedule for Table Wine

Table Wine	Volume* Markup ($ per litre)	Percentage Markup (Applied to Landed Cost + Vol. Markup)	Cost of** Service Differential
B.C. (30%-100% B.C. content)	0.12	83%	—
B.C. (0%-29% B.C. content)	0.12	88%	—
B.C. Estate	0.07	68%	—
Other Canadian	0.12	100%	0.56
U.S.	0.12	100%	0.71
Other Imported	0.12	106%	0.56

* The volume markup on B.C. still red table wine is $0.07 per litre.
** The cost of service differential is applied only to imported wines. This cost is added after the percentage markup.

The provincial sales tax of 10% is added to all wines (Canadian and foreign) at the time of sale to consumers.

Fresh Market

There is a large market for fresh grapes (Table 55, 56 and 57). There is no market for traditional "concord" type grapes grown in B.C. There is a large market for juice grapes used for home wine making (Table 58). Markets for fresh grapes produced in B.C. have traditionally been in British Columbia and prairie provinces. Per capita consumption of fresh grapes in Canada is currently about 6.35 kilograms (Table 55).

TABLE 55 Apparent Per Capita Consumption of Fresh Grapes in Canada

Year	Consumption kg.	lbs.
1960	4.39	9.66
1970	4.32	9.50
1980	5.46	12.01
1988	6.35	13.97

Source: Statistics Canada: Apparent Per Capita Food Consumption in Canada. Publication 32-230.

TABLE 56 Deliveries of Table Grapes in Major Markets 1990 - 1987 (Tons)

Years MARKET	1990	1989	1988	1987
Vancouver	14,292	12,256	13,092	11,688
Calgary	5,240	4,736	4,606	4,025
Edmonton	6,105	5,603	6,134	4,922
Saskatoon	2,226	1,863	2,058	1,789
Regina	1,549	1,239	1,351	1,245
Winnipeg	5,329	4,714	4,781	3,943

Source: Ag. Can.: Annual Unload Report. Fresh Fruits and Vegetables. 1990- 987

TABLE 57 Fresh Grape Deliveries During Aug/Sept/Oct 1990 (Tons)

Market	Source B.C.	Source Total	B.C. as a percent of the Total
Vancouver	38	5,056	0.75
Calgary	23	1,623	1.42
Edmonton	33	1,933	1.71
Saskatoon	0	799	0.00
Regina	20	569	3.51
Winnipeg	0	1,698	0.00

Source: Ag. Can.: Annual Unload Report. Fresh Fruits and Vegetables. 1990-1987

TABLE 58 Importations of California Juice Grapes Aug/Sept/Oct 1990-1987 (Tons)

Market	1990	1989	1988	1987
Vancouver	0	3	235	408
Calgary	333	157	n/a	127
Edmonton	1,803	1,296	1,068	1,364
Saskatoon	47	51	49	40
Regina	6	26	26	19
Winnipeg	975	687	1,029	1,020
Toronto	13,211	14,035	22,370	18,923

Source: Ag. Can.: Annual Unload Report. Fresh Fruits and Vegetables. 1990 - 1987

Juice Market

In addition to the markets for wine, table and home wine (juice) grapes (Table 58), there is also a large market for grape juice (Table 59, 60). Some of this market represents sales to the commercial wine industry, but a very large portion of this market represents juice importations for wine making and other uses (Table 61). The largest supplier of grape juice to British Columbia in 1990 was the United States (93%), followed by Argentina (5%) and other countries (2%) (Table 60).

TABLE 59 Grape Juice Importations (Including Must) Unfermented and Unspirited Juice

	British Columbia		Canada	
Year	Quantity(l.)	Value($)	Quantity(l.)	Value($)
1989	4,896,358	5,065,787	21,482,825	22,209,962
1990	3,919,075	4,641,338	17,527,092	24,106,104

Source: Statistics Canada

TABLE 60 Grape Juice Importations to British Columbia (Including Must) Unfermented and Unspirited Juice

	1990		1989	
	Quantity (Litres)	Value ($)	Quantity (Litres)	Value ($)
United States	3,634,291	4,170,909	4,649,424	4,613,522
United Kingdom	323	726	3,253	6,149
Austria	—	—	—	—
Italy	40,971	94,284	—	—
China, P.Rep.	967	2,083	2,064	2,951
Korea, South	330	313	1,261	2,162
Australia	40,089	71,326	125,657	292,811
Argentina	202,104	301,697	111,751	142,960
Germany, West	—	—	834	1,875
Spain	—	—	2,114	3,357

Source: Statistics Canada

TABLE 61 **Types of Grape Juice – Imported to British Columbia - Imported to British Columbia (Including Must) - Unfermented and Unspirited Juice**

	1990		1989	
	Quantity (Litres)	Value ($)	Quantity (Litres)	Value ($)
Grape Juice for Wine Making				
Concentrated				
- Frozen	15,798	33,498	17,820	31,894
- Not Frozen	1,522,593	2,096,036	2,287,719	2,391,913
- Not Concentrated	1,771,461	1,486,675	1,927,201	1,598,549
Other than Winemaking				
Concentrate in air-tight containers				
- Frozen and non-Frozen	245,491	409,879	145,619	253,309
Concentrate not in air-tight containers				
Other	218,620	398,324	374,648	584,980
	78,741	125,005	107,578	173,198
Not Concentrated in air-tight Containers				
	48,164	75,022	19,354	15,658
Not Concentrated, not in air-tight containers				
	18,207	16,899	16,419	16,286

Source: Statistics Canada

Market Supply

Supplies of grapes to B.C. wineries comes mainly from B.C., however, major wineries no longer import grapes. Instead, they import wine, must or grape juice (Table 62, 63). Imported wine, must or grape juice comes mainly from California and Washington State, but imported wines for bottling also come from Germany and France. South American sources are likely in the future.

Wineries in B.C. presently purchase all B.C. grapes under contract on the basis of acres of grapes contracted. Plantings of non-contracted acreage have recently taken place, but are not yet in production.

TABLE 62 Raw Material Sources for British Columbia Wineries - 1990

Source	Material Used
B.C. Grapes	4,827 tons
Imported Must	80,000 litres
Imported Juice	2,822,500 litres
Imported Wine	6,948,195 litres

Source: John Vielvoye, Provincial Grape Industry Specialist, B.C. Ministry of Agriculture, Fisheries and Food

TABLE 63 U.S.A. Wine Exports to Canada

Year	Volume (U.S. gallons)	Litres
1990	6,624,000	25,074,489
1989	5,660,586	21,427,582
1988	4,067,414	15,396,789
1987	3,296,870	12,479,972
1986	2,587,632	9,795,222
1985	2,506,870	9,489,506
1984	2,879,032	10,898,288

Source: Wines and Vines. July 1990 and July 1991

Industry Strengths and Weaknesses

Grape Industry

Strengths

- People growing grapes are energetic and optimistic about the future.
- Range of grape varieties grown is unique.
- Acceptance of "organic" grapes is high in B.C. and Canada.
- Availability of suitable soils with suitable climate in all viticulture regions.
- Absence of many insects and diseases common to other grape growing areas.
- Strong tourism base related to the wine industry.
- Producers are eager to improve management skills.
- Quality of grapes produced is good and continues to improve.
- Quality standards are in place.
- The selection of varieties and clones is market driven.
- Contracts are based on acres of grapes.
- Development of new sources of grape plants.

Weaknesses

- Lenders (banks) not experienced with the industry resulting in reluctance to provide loan capital.
- Input costs are high (ie. Interest costs, energy, labour, land, equipment) compared to most competitive nations.
- Range of varieties produced offers a wide scope of wine varietals that are difficult to market.
- Topography and climate adversely influence cost of production.
- Short growing season.
- Pressure from residential development.
- Difficult to grow good quality red vinifera grapes.
- Winter climate can be severe.
- Grape quality standards need improvement.
- Uncertainty of grape prices in the future.
- Long term nature of grape production plus high level of input costs makes it difficult for producers to adjust to changing demands or market conditions on short notice.

Grape Industry (cont'd.)

Strengths	Weaknesses
• Creation of B.C. Wine Institute. • Stable prices for grapes until 1995.	• Lack of heat units at the end of the growing season. • Changing demand for varieties and clones. • Lack of quality standards based on individual grape varieties. • Have not been able to develop intensity of character for individual varieties. • Low yields per acre. • Lack of red varieties for wineries. • Industry still has a large percentage of hybrid grapes. • Small average size vineyards

Wine Industry

Strengths	Weaknesses
• Creation of B.C. Wine Institute. • Good support from B.C. government. • Growing volume of direct sales from estate and farm wineries (non-liquor store sales).	• Trend to acceptance by consumer of traditional varieties. • Unable to develop intense varietal character with raw material offered today. • Contracts based on acres of grapes rather than tonnage required.

Wine Industry (cont'd.)

Strengths

- VQA program has given consumers confidence in the ability to produce high quality wines using 100 % B.C. grown grapes.
- Ability to sell direct.
- Sales through LDB.
- Young people entering the industry.
- Ability to change product lines to meet consumer demand.
- Have quality products in the market place.
- Have competitive products in the market place.
- A national organization that represents the Canadian industry level (Canadian Wine Institute).

Weaknesses

- Small size of the wine industry.
- Capital investment needed to enter the industry under present restrictions.
- Shortage in capacity of estate wineries is anticipated.
- Not able to determine if low varietal character and low intensity of character is due to viticulture or wine making technology.
- Opportunities in wine styles that are available to only a few of our competitors (ie. ice wine).
- Decreasing market share for major wineries.
- Low population in Okanagan region.
- Markup policy on direct sale.
- Need to sell more wine through direct sales.
- Taxation of wine used in sampling on a national and international at the winery.
- Not enough inventory of wines that are in demand.
- Lack of national wine standards and national wine regulations.

Wine Industry (cont'd.)

Strengths

Weaknesses

- High mark-up and tax structure.
- Demand by provincial and federal governments for revenue through taxation and markup.
- High input costs.
- Lack of knowledge to make great (as opposed to good) wines.
- Low volume - high overhead costs.
- Reductions in the number of people in the industry at all levels.
- Loss of talent, and opportunity to develop talent.
- Too many industry imposed impediments to opening a winery.
- Industry impediments restrict the opportunity to match talent to resources.

Grape Industry Needs

General Grape Industry Needs

- Wineries to take an active part in setting goals and objectives and define direction for the industry.
- More acreage of grape varieties that are in demand.
- Maintain winery contracts on the basis of acreage.
- Mechanization of vineyard operations.
- Need to know what standards will be in 1995 and beyond; i.e., specific by variety.
- Strengthen the role of the Viticulture Research Committee to coordinate research needs and research activities with such agencies as Agriculture Canada; B.C. Wine Institute; B.C. Ministry of Agriculture, Fisheries and Food; Association of B.C. Grape Growers; Grape Marketing Board.
- Development of export markets for grape products.
- Development of the fresh grape industry to meet the opportunities that this market has to offer.
- Continued updating of technology and cultural practices.

Grape Industry Technology Transfer Needs

- Leadership from the wine industry.
- Reduce the costs of production.
- Access to "fantastic" varieties and clones. Not necessarily just new varieties, but good clones of existing varieties plus new varieties that are exceptional.
- Mechanization of vineyard operations.
- Research into variety testing, grape breeding, cropping systems. The following areas of research should be addressed:
  - fresh market grape varieties
  - wine grape varieties
  - cloning and development of varieties, looking for special and unique flavors that can be recognized as distinctive B.C. products.

- Effects of shading on maturity of grape.
- Influence of crop load on fruit quality and wine quality.
- Cordon vs. pendelum bow training.
- Various trellising and training systems that reduce costs and improve yield and quality of fruit for table wines.
- Optimum spacing.
- Develop comprehensive demonstration projects that look at all aspects of vineyard management; e.g., soil, climate, cover crop, variety, rootstock, trellis, etc.

Grape Industry Research Needs

- Winery leadership in addressing research needs in vineyards.
- Research on quality improvement of wine by improving the methods and techniques of grape growing.
- Reduce the cost of production.
- Improve yield per acre while improving grape quality.
- Research into variety testing, grape breeding, cropping systems. The following areas of research should be addressed:
  - fresh market grape varieties
  - wine grape varieties
  - cloning and development of varieties, looking for special and unique flavours that can be recognized as distinctive B.C. products.
- Cold hardiness studies of varieties; influences of cultural practices.
- Irrigation control to influence fruit quality and hardiness.
- Effects of delayed harvest on fruit quality.
- Continued research to control grape insects and diseases such as powdery mildew, bunch rot, crown gall, leafhopper, phylloxera and cutworms using conventional and biological methods.

- Research on vineyard floor management; eg. clean vs. cover crop vs. crop load vs. quality of fruit.
- Research on water/grapevine relationships; eg. fertigation, irrigation management for quality/yield, overhead vs. drip vs. microjet vs. yield and quality soil moisture measuring devices.
- Vigour control - devigorating via cultural methods.
- Flavor characteristic and wine making potential of major cultivars and clones locally produced.
- Influence of rootstocks on vigor, hardiness, harvest date, soil adaptation and site.
- Various trellising and training systems that reduce costs and improve yield and quality of fruit for table wines.
- Optimum spacing.

Wine Industry Needs

General Wine Industry Needs

- to work with grape growers on issues related to the grape industry;
- grape varieties with names that are traditional and recognizable by the consumer;
- continued government support;
- to know what government rules will be in 1995 and beyond;
- contract future raw materials on the basis of tonnage – not acreage;
- new grape standards in place for 1995;
- exempt export sales from winery size licence;
- development of export markets;
- reduced capital investment through greater flexibility in production and bottling practises, particularly for farm and estate wineries: e.g., permit cooperative use of wine equipment; mobile filtering and bottling etc.;
- commercial lab (in the Okanagan) located to do various analysis; lab must be certified and produce certificates useful for export wines;
- access to other Canadian markets;
- national wine standards;
- national wine regulations;
- removal of non-tariff barriers in foreign markets and domestic markets;
- consultants with proven track records for the production of world class (great) wines;
- to work with other fermentation industries in securing a position at a university dedicated to fermentation science including wine;
- to encourage a university to develop a wine technology program so that new knowledge and locally trained enology graduates are produced for the British Columbia and Canadian industry;

- to develop exchange programs with foreign universities and research facilities in order to introduce new knowledge and exchange knowledge;
- to develop linkages with foreign and local universities and research facilities so that new knowledge can be evaluated and/or generated.

Wine Industry Technology Transfer Needs

- chemical acid reduction methods in wines;
- biological acid reduction methods in wines; e.g., when to add biological agents and what are the best bacteria (ML) to use;
- development of technology for using ML bacteria that small wineries can afford;
- part-time food processing technologist that does extension;
- clean ML cultures free of spoilage organisms.

Wine Industry Technology Research Needs

- identification of the sources of varietal character. Where does it come from? How is it developed? How can it be developed to be more intense?
- research on viticulture practises and how these affect wine quality; aging of wines;
- research in wines related to why some wines do not age well;
- identify flavour components of wines and relate these to sensory evaluations;
- acid reduction using cultural methods;
- relationship between soil nutrients, pH, etc., on fruit acids;
- research into identification and control of spoilage organisms; cellars are cold, delivery of grapes is sometimes slow and spoilage in fruit offsets wine production;
- research into reduction or elimination of sulfite use in wine production.

Development Potential

There are several areas for substantial growth and development in the grape and wine industry.

Wine Grapes and Wine Industry

The issues facing wine grape producers in British Columbia are whether or not there is a market for B.C. grapes after the current contracts expire, and the prices that will be paid for those grapes.

Potential exists to service existing winery market demand with grapes produced in British Columbia so long as they can produce the quality and quantity of product desired by the market.

Capturing existing markets presently filled with grape products not of British Columbia origin is possible. Continued variety testing and market research to find suitable substitutes will assist in that process.

The demand for white wine (and therefore white grapes) is strong and will likely continue. The demand for red wine (and therefore red wine grapes) has increased.

Demand for B.C. grapes from estate wineries has grown to represent 30% of grape purchases in 1990. In 1985 estate wineries purchased 9% of all B.C. grapes. Estate winery capacity is presently a limiting factor. More wineries are required with more than 181,600 litre maximum capacity.

Farm wineries are important segments of the industry. However, their consumption of grapes is relatively small on an industry basis and their effects have not yet been felt as a market force (Table 64).

TABLE 64 Table Wine Sales – B.C. Wineries
March 1990- March 1991

Winery	Volume (Litres)	Value Retail Sales (x 1000)	Value ($) per litre
Commercial	14,149,842	84,675	5.98
Estate	665,380	6,346	9.54
Farm	107,000	107	10.04
Import Bottled	2,044,413	13,079	6.40

Source: Liquor Distribution Board Quarterly Review. March 1991

Major wineries consumed 100% of the B.C. grape crop in 1984, but 70% of the 1990 grape crop. Not all major wineries utilize 100% of their B.C. grape purchases as VQA wines. A large portion of their purchases are blended with imported wines. This blended portion of the wine market is decreasing. In 1990, B.C wines had a 48% share of the total wine market as compared to 59% in 1986 (Graph 4).

Major wineries will need to address this erosion of market share to stay competitive and profitable.

Major wineries will need to make long term commitments to marketing British Columbia produced wines on a national basis outside British Columbia.

Major wineries have indicated a need for white and red grape varieties suitable for the production of good quality bulk wines. The ability of B.C. grape growers to supply competitively priced and competitive quality grapes for blending purposes will influence the future requirements of grapes used as blending material.

Potential markets exist for new products such as de-alcoholized wines.

Inter-provincial trade barriers need to be removed.

Expanded sales of wines made from British Columbia grapes have taken place as a result of changes in consumer perception of British Columbia wines. This change has been aided by research into new varieties, improved grape and wine quality, a broadening of distribution in a wider variety of sales outlets and promotion programs targeted at quality British Columbia wines.

The goal of the B.C. Wine Institute is to expand the markets for wines made from 100% B.C. grown grapes. Promotion activities for such wines have been very encouraging (Table 65). The number of premium wines produced has been increasing steadily. Market saturation is not yet a problem.

Prior to the VQA program the sales of those wines now classified under the appellation trade mark of VQA totalled 608,000 litres. Sales to September 1990 (including the sales of nine months of the VQA program) have reached 1.1 million litres, exceeding sales forecasts.

Increased utilization of B.C. grapes by wineries and increased VQA wine sales will depend upon the success of the VQA program domestically, and on the ability of wineries to export to other provinces and other countries. Early indications of the VQA program are encouraging. Sales will still need to increase sevenfold to equal the present supply of grapes if all grapes are to be used by the VQA program by the end of 1994.

TABLE 65 Average Monthly Growth Rate of VQA Wines December 1990 - June 1991

MONTHS								
Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
+61%	+33%	+34%	+81%	+41%	+40%	+40%	+65%	+48%

Other grape products

Potential market opportunities exist for fresh market grapes (Tables 56, 57), grapes for the home winemaker (Table 58), and the production of grape juice for wine making and uses other than wine (Tables 59, 60, 61).

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